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BLACKBIRDS

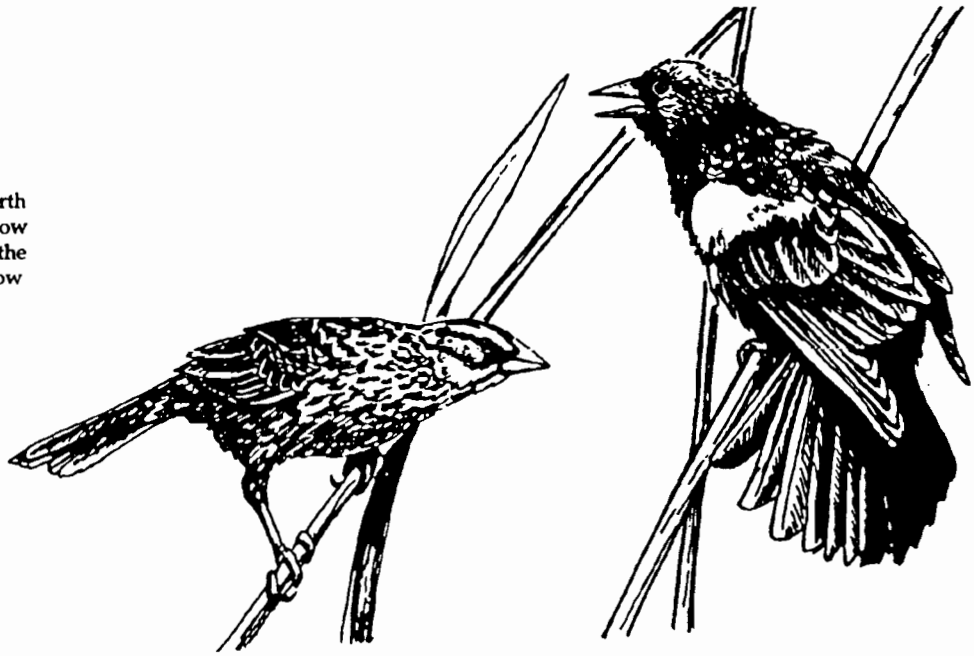
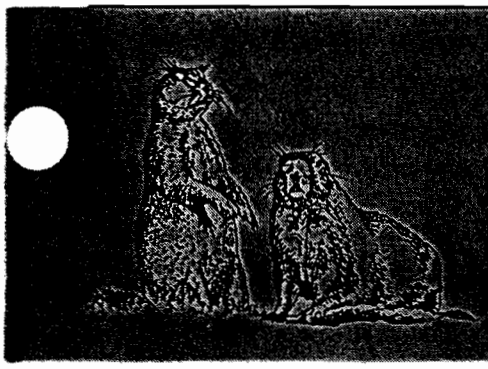


Fig. 1. The red-winged blackbird (*Agelaius phoeniceus*) is the most abundant bird in North America. The black male, with red and yellow shoulder patches, is about 40% larger than the female. The female resembles a large sparrow more than a blackbird.

Damage Prevention and Control Methods for Blackbirds

	Type of Crop Damage				
Method of control	Sprouting corn and rice	Ripening corn, sorghum, and sunflower	Ripening rice and oats	Fruit crops	Feedlots
Exclusion	Generally not practical; netting can be used on small plots.	Generally not practical; netting can be used on small plots; paper bags over ears or heads.	Generally not practical; netting can be used on small plots.	Netting is cost-effective for high-value crops.	See chapter on starlings.
Cultural methods	Deep planting, avoid early planting of rice.	Grow nonpreferred crops near roost; provide alternative feeding sites. Avoid early or late planting; use resistant hybrids. Harvest as early as possible.	Same as for ripening corn except resistant hybrids are not available.	Provide alternative feeding site; early harvest.	See chapter on starlings.
Frightening	Several devices available; most popular is propane exploder.	Several devices available; most popular is propane exploder; Avitrol®.	Several devices available; most popular is propane exploder.	Several devices available; most popular is propane exploder.	See chapter on starlings; Avitrol®.
Repellents	Seed treatments.	None available.	None available.	None available.	See chapter on starlings.
Toxicants	None available.	None available.	None available.	None available.	Starlicide.
Trapping	Generally not practical.	Generally not practical.	Generally not practical.	Decoy traps.	Decoy traps.
Shooting	Helpful to reinforce frightening devices, futile for population reduction.	Helpful to reinforce frightening devices, futile for population reduction.	Helpful to reinforce frightening devices, futile for population reduction.	Helpful to reinforce frightening devices, futile for population reduction.	Helpful to reinforce frightening devices, futile for population reduction.



PREVENTION AND CONTROL OF WILDLIFE DAMAGE — 1994
Cooperative Extension Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln

United States Department of Agriculture
Animal and Plant Health Inspection Service
Animal Damage Control

Great Plains Agricultural Council
Wildlife Committee

Introduction

The term *blackbird* loosely refers to a diverse group of about 10 species of North American birds that belong to the subfamily Icterinae. In addition to blackbirds, this subfamily includes orioles, meadowlarks, and bobolinks. The various species of blackbirds have several traits in common. The males are predominantly black or iridescent in color. All blackbirds have an omnivorous diet consisting primarily of grains, weed seeds, fruits, and insects. The relative proportions of these food groups, however, vary considerably among species. Outside of the nesting season, blackbirds generally feed in flocks and roost at night in congregations varying from a few birds to over one million birds. These flocks and roosting congregations are sometimes comprised of a single species, but often several species mix together. Sometimes they are joined by non-blackbird species, notably European starlings *(Sturnus vulgaris)* and American robins *(Turdus migratorius)*.

The species also have many important differences in their nesting biology, preferred foods, migration patterns, and their damage and benefits to agriculture. Summarized below for each of seven species of blackbirds is information on identification, geographic range, preferred habitats, feeding habits, general biology, and damage.

Red-winged Blackbird
(Agelaius phoeniceus)

Identification

The male, a little smaller than a robin, is black with red and yellow shoulder patches. The smaller female is brownish, resembling a large sparrow (Fig. 1).

Range and Habitat

An abundant nester throughout much of North America, the red-winged blackbird nests in hayfields, marshes, and ditches. Large flocks feed in fields and bottomlands. Redwings winter in the southern United States.

Food Habits and General Biology

Insects are the dominant food during the nesting season (May through July), with the diet shifting predominantly to grain and weed seeds in late summer through winter. Males and females often forage in separated flocks, with females being more insectivorous than males. Except during nesting season, redwings congregate in large nighttime roosts in marshes or woods containing up to several million birds. Annual survival rate is only about 50% to 60%. This high mortality rate is offset by a reproductive rate of 2 to 4 young fledged per female per year. Females have 3 to 5 eggs in their open-cup nests made of grasses and other vegetation. Eggs hatch after 12 days of incubation; the young grow rapidly and are ready to fledge about 10 days later. Females will often renest if their initial nest is destroyed.

Damage to Crops

Red-winged blackbirds can cause considerable damage to ripening corn, sunflower, sorghum, and oats in the milk and dough stages, and to sprouting and ripening rice. These birds provide some benefits by feeding on harmful insects, such as rootworm beetles and corn earworms, and on weed seeds, such as Johnson grass.

Common Grackle
(Quiscalus quiscula)

Identification

An iridescent blackbird larger than a robin, the common grackle has a long keel-shaped tail. The male, slightly larger than the female, has more iridescence on the head and throat (Fig. 2).

Range and Habitat

A common nester throughout North America east of the Rockies, the common grackle nests in shelterbelts, farmyards, marshes, and towns. Flocks feed in fields, lawns, woodlots, and bottomlands. These birds winter in the southern United States, often in association with redwings, cowbirds, and starlings.

Food Habits and General Biology

The common grackle's diet is somewhat similar to that of the redwing, but the grackle is more predatory. Its diet occasionally includes small fish, field mice, songbird nestlings, and eggs. Grackles have a larger, stronger bill than redwings, allowing them to feed on acorns and other tree fruits in

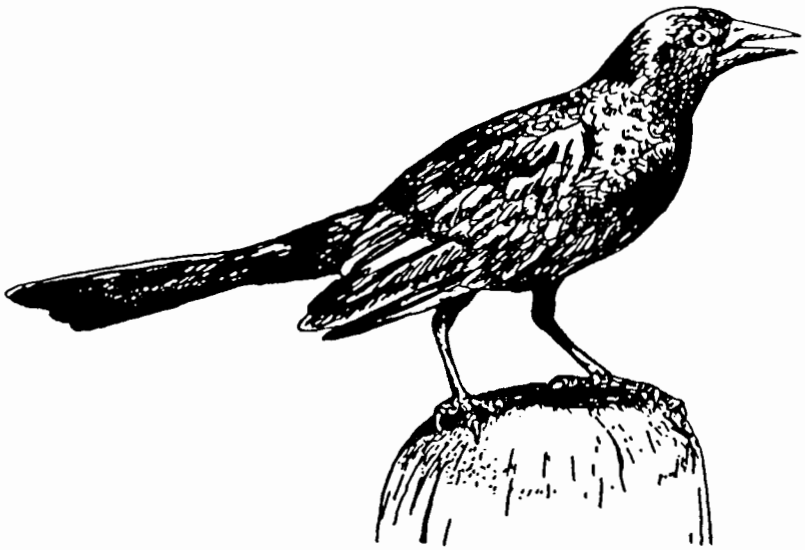


Fig. 2. The common grackle (*Quiscalus quiscula*) is an iridescent blackbird, larger than a robin, with a long, keel-shaped tail.

winter. Grackles often roost with redwings, but are more partial to roosting sites in upland deciduous or pine trees. Reproductive and survival rates are similar to redwings.

Damage to Crops

Damage is similar to that of redwings; however, grackles will feed on mature field corn in the dent stage, removing entire kernels from the cob. Also, grackles will pull up sprouting corn.

Great-tailed Grackle
(Quiscalus mexicanus)

Identification

This species is similar to the common grackle but with a much larger tail. The male is slightly smaller than a crow; the female is smaller and browner than the male.

Range and Habitat

An abundant year-round resident in coastal and southern Texas, the great-tailed grackle nests in colonies in shrubs or trees, sometimes in association with herons and egrets. The flocks feed around farms, pastures, and parks.

Food Habits and General Biology

The diet is omnivorous: insects, aquatic organisms, eggs from nesting birds, fruits, and grains. Reproductive and survival rates are similar to those of redwings.

Damage to Crops

These birds damage all types of fruits and melons, although the loss is generally minor. In recent years, however, their damage to citrus crops in localized areas of the lower Rio Grande Valley of Texas has been substantial. Great-tails peck the citrus fruit skin, creating blemishes or holes.

Brown-headed Cowbird
(Molothrus ater)

Identification

The cowbird is the smallest blackbird. The male is black with a brown head and the female is gray. Both sexes have sparrowlike bills (Fig. 3).

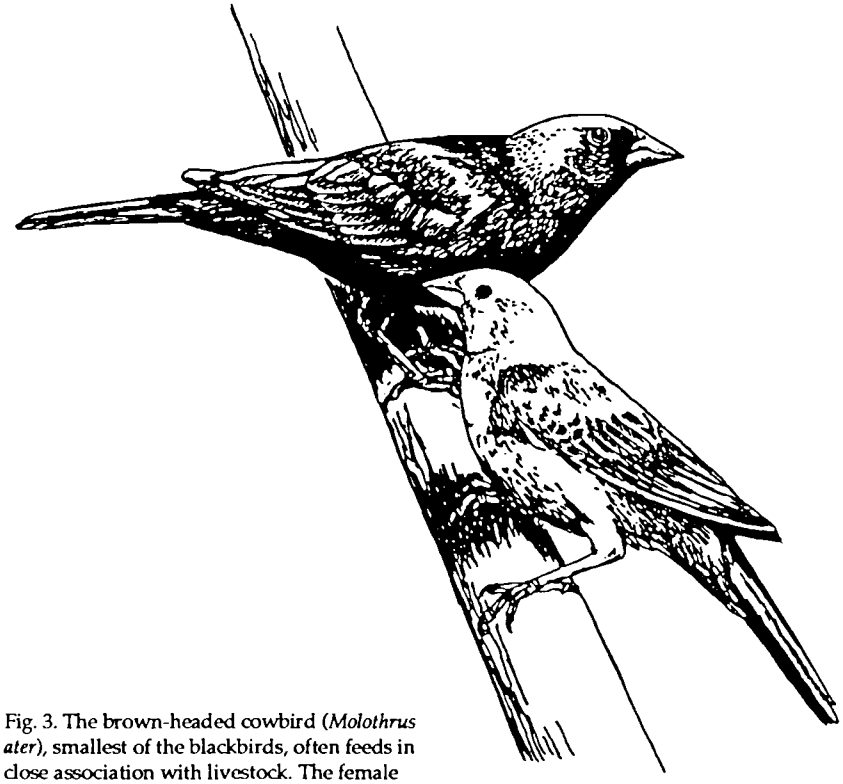


Fig. 3. The brown-headed cowbird (*Molothrus ater*), smallest of the blackbirds, often feeds in close association with livestock. The female cowbird (lower) lays her eggs in the nests of other birds.

Range and Habitat

Cowbirds occur in spring and summer throughout much of North America. Flocks feed in pastures and feedlots, and are often associated with livestock. Cowbirds winter in the central to southern United States, often roosting with redwings, grackles, and starlings.

Food Habits and General Biology

The diet of cowbirds consists predominantly of weed seeds and grains, and less than 25% insects. Cowbirds do not build nests or incubate eggs; the female lays her eggs in nests of other songbirds, the only North American songbird to do so. Females deposit 1 or sometimes 2 eggs per host nest, laying up to 25 or more eggs per nesting season.

Damage to Crops

This species can cause damage to ripening sorghum, sunflower, and millet. Cowbirds consume some livestock feed, but often glean waste grain and seed from dung. Overall damage is usually minor.

Yellow-headed Blackbird
(Xanthocephalus xanthocephalus)

Identification

A robin-sized bird, the male has a striking appearance with his black body, conspicuous yellow head and breast, and a white wing patch in flight. The female is smaller and browner, with a yellowish throat and breast.

Range and Habitat

Yellowheads are locally abundant nesters in deep-water marshes of the northern Great Plains and western North America. They feed in agricultural fields, meadows, and pastures during late summer and fall, sometimes in association with redwings or other blackbirds. They winter farther south than other blackbirds, primarily in Mexico.

Food Habits and General Biology

The diet is similar to that of redwings; yellowheads eat primarily insects during the nesting season and grains and

weed seeds at other times. An early migrant, the yellowhead leaves the northern plains by September. Survival and reproductive rates are similar to those of redwings.

Damage to Crops

Yellowheads cause localized but generally minor damage to ripening corn, sunflower, and oats, often in association with redwings. They often leave the northern prairie regions by the time corn and sunflower are ripening in autumn.

Brewer's Blackbird
(Euphagus cyanocephalus)

Identification

A robin-sized bird, the male is all black with whitish eyes; the female is brownish gray with dark eyes.

Range and Habitat

A familiar bird in the northern Great Plains and western North America, the Brewer's blackbird nests in a diversity of habitats. It prefers pastures, lawns, and agricultural lands for feeding. It is a winter migrant in the central and southern Plains states, sometimes roosting with other blackbird species.

Food Habits and General Biology

The diet is about two-thirds grain and weed seeds, and one-third insects and other animal matter. They feed in flocks on waste grain and weed seeds and nest in colonies. Reproductive and survival rates are similar to those of redwings.

Damage to Crops

Brewer's blackbirds cause generally minor damage to oats, fruit crops, and livestock feed and consume large numbers of noxious insects during the summer months.

Rusty Blackbird
(Euphagus carolinus)

Identification

Similar to Brewer's blackbird, its fall and winter plumage has a rusty coloration.

Range and Habitat

Rusty blackbirds nest in northern swamps and muskegs (bogs) throughout Canada, Alaska, and northern New England. They migrate in winter to the southern United States from the Atlantic coast to east Texas.

Food Habits and General Biology

The diet of rusty blackbirds is more insectivorous than that of other blackbirds. Over 50% of their food is animal matter. Grain (gleaned from harvested fields in fall and winter), weed seeds, and tree fruits are also eaten. In winter, rusty blackbirds prefer swampy areas and river bottoms. They often roost with other blackbird species.

Damage to Crops

This species does little damage to crops.

Damage Identification and Assessment

Blackbird damage to agricultural crops is often readily discernable because of the conspicuousness of the flocks of birds and the visible signs of the damage. However, correct identification of the species of birds in the agricultural field is important, along with evidence that the birds are actually feeding on the crop. For example, starlings superficially resemble blackbirds and sometimes feed in cornfields, yet they usually feed on concentrations of insects such as armyworms, doing little damage to corn. Also, red-winged blackbirds will often be attracted to agricultural fields, such as corn, initially to feed on rootworm beetles and other insect pests. They will not damage the crop itself until the grain has reached the milk stage. Blackbirds often forage in newly planted grain fields such as winter wheat, feeding on previous crop residue, weed seeds, and insects without bothering the sprouting grain.

Blackbird damage is also sometimes confused with other forms of loss. Raccoon and squirrel damage to corn can be mistaken for blackbird damage (Fig. 4). Also, seed shatter in sunflower caused by wind may resemble bird damage; however, the difference can usually be detected by examining heads for the presence or absence of bird droppings and by looking on the ground for hulls or whole seeds. Careful observation of the birds in the field and a little detective work will usually result in the correct identification of damage.

Fig. 4. Damage to corn by blackbirds (a) and raccoons (b) can sometimes be confused. Blackbirds usually slit or shred the husk and peck out the soft contents of kernels, leaving the kernel coat. Raccoons and squirrels chew through the husk and bite off the kernels. In addition, raccoons often pull stalks down to the ground.

To estimate accurately the amount of blackbird damage in an agricultural field, examine at least 10 locations widely spaced throughout the field. For example, if a field has 100 rows and is 1,000 feet (300 m) long, walk staggered distances of 100 feet (30 m) along every 10th row (for example, 0 to 100 feet [0 to 30 m] in row 10, 101 to 200 feet [31 to 60 m] in row 20, and so on). In each of the 100-foot (30-m) lengths, randomly select 10 plants and visually estimate the damage on the head or ear of each plant to the nearest 1% (for instance, 2% destroyed, 20% destroyed). For corn, six kernels usually represent about 1% of the corn on an ear; for sunflower, it may be easiest to visually divide the head into four quarters and then estimate the percentage of seeds missing. When finished, simply determine the average damage for the 100 plants examined. This will give an approximation of the percent loss to the field. Multiplying the percent loss by expected yield can give a rough estimate of yield loss. In small grains, such as rice, estimates of loss are more difficult to obtain. One possibility is to simply compare the yields from plots in damaged and undamaged sections of a field.

Legal Status

Blackbirds are native migratory birds, and thus come under the jurisdiction of the Federal Migratory Bird Treaty Act, a formal treaty with Canada and Mexico. Blackbirds are given federal protection in the United States. They may be killed only when found "committing or about to commit depredations upon ornamental or shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such numbers and manner as to constitute a health hazard or other nuisance," as stated in federal laws regarding migratory birds (50 CFR 21). Some states have additional restrictions on the killing of blackbirds.

Damage Prevention and Control Methods

Exclusion

Exclusion of blackbirds from agricultural crops is practical only for small gardens, experimental plots, and high-value fruit crops. Use lightweight netting to cover trees, bushes, or small plots. Protect individual ears of sweet corn in garden plots by placing paper bags over them after the silk has turned brown.

Cultural Methods and Habitat Modification

Most economically severe blackbird damage to agricultural crops occurs in fields within 5 miles (8 km) of roosts. Thus, one strategy is to plant nonattractive crops—such as soybeans, wheat, potatoes, or hay—in fields within a few miles of a roost. If crops vulnerable to damage, such as corn or sunflower, are planted near a roost, alternative feeding sites should be made available to reduce the feeding pressure on these cash crops. Delaying the plowing or tilling of previously harvested cropland near roosts to provide alternative feeding sites is one strategy to reduce damage to maturing crops. Also, fields near roosts should not be planted unusually early or late so that they mature in isolation from other fields in the area. In general, as alternative feeding sites decline, maturing grain or sunflower fields become more attractive to blackbirds, and keeping them out becomes more difficult.

Experimental programs are under way in sunflower production areas of the northern plains to thin out dense stands of cattails in marshes where large numbers of blackbirds roost. A registered herbicide (Rodeo®) is applied in swaths to about 70% of the marsh. Thinning the cattail stands decreases blackbird roosts in the marsh and increases use by waterfowl for nesting and other activities.

Damage to sprouting rice fields planted near blackbird roosts in Louisiana and Texas can be substantially reduced by delaying planting until April. By this time, the large flocks of migrant blackbirds will have left for their northern nesting areas.

The timing of harvest can be very important in reducing damage to fields from flocks of blackbirds. For example, redwings inflict most damage to sweet corn at the time of fresh-market harvest, when the corn enters the milk stage. Timely harvest of sweet corn can substantially reduce damage. Although field corn generally becomes unattractive to birds when the kernels mature, sunflower, sorghum, and rice continue to be attractive after they mature and thus should be harvested as soon as possible.

Hybrids of corn with long husk extension and thick husks are more resistant to damage than other hybrids. Sorghum that contains a high tannin content is also less preferred than low-tannin varieties. For sunflower, birds prefer oil seed cultivars over the confectionery cultivars. Using sunflower cultivars with heads that turn downward as they mature and seeds with thick hulls should also help reduce feeding by blackbirds.

Frightening

The use of frightening devices can be quite effective in protecting crops from flocks of blackbirds. Their use also requires hard work and long hours for the farmer, who needs to be persistent and innovative to keep one step ahead of the birds. Devices need to be employed especially in the early morning and in late afternoon when the birds are most actively feeding. Crops such as sweet corn, which are vulnerable to blackbirds for only a few days before harvest, may not be too difficult to protect; however, the task becomes more formidable for crops such as sunflower and sorghum, which may be vulnerable for up to six weeks. Propane exploders (some with timers that automatically turn them on and off each day) are the most popular frightening devices. In general, use at least one exploder for every 10 acres (4 ha) of crop to be protected. Elevate exploders on a barrel, stand, or truck bed to "shoot" over the crop, and move them around the field every few

days. In addition, reinforce this technique occasionally with other scare devices. By shooting a .22 caliber rifle just over the top of a crop, a person on a stand or truck bed can frighten birds from fields of 40 acres (16 ha) or more. Obviously, care must be taken when shooting in this manner, and the use of limited range cartridges is recommended. Also effective are shell crackers, 12-gauge shotgun shells containing fire cracker projectiles that explode after traveling up to 150 yards (135 m). Shooting birds with a shotgun, using standard bird shot, often can kill a few birds and reinforce other scare devices. This technique, however, usually is not as effective in moving birds as the other devices that have greater range. Thus, a shotgun patrol should not be used as the sole means of frightening birds.

A variety of other bird-frightening devices, including electronic noise systems, helium-filled balloons tethered in fields, radio-controlled model planes, reflecting tapes made of mylar (Fig. 5), tape-recorded distress calls for birds, and various types of scarecrows, are also occasionally used to rid fields of blackbirds. The effectiveness of these devices is highly variable, depending on the persistence of the operator, the skill used in employing a device, the attractiveness of the crop, the number of birds, and the availability of alternate feeding sites. As mentioned with regard to propane exploders, birds tend to adjust or adapt to frightening devices. It is usually best to use two or more devices than to rely on a single device.

Avitrol® is a registered chemical frightening agent for blackbirds in corn and sunflower fields. One out of every 100 particles of cracked-corn bait is treated with the chemical, 4-aminopyridine. The bait is applied to fields in swaths, often by airplane, at the rate of 3 pounds per acre (3.3 kg/ha) to one-third of the field. The ingestion of one or more treated particles by a blackbird induces erratic flight, distress calls, and usually death. This behavior often causes the remaining birds in the flock to leave the field.

Careful consideration must be given to the timing of initial and repeat baitings. Begin baitings when birds first initiate damage, and repeat as necessary, typically at 5- to 7-day intervals. Dense weed populations that hide bait, ground insects such as crickets that eat bait, and excessive rainfall can contribute to making the product ineffective.

Repellents

No bird repellents are currently registered for maturing grain, sunflower, or fruit crops. Several seed-treatment repellents such as Ro-pel® (active ingredient is benzyl diethyl ammonium saccharide) and Sevana Bird Repellent (ground garlic and pepper) have been registered to reduce bird damage to freshly planted and sprouting corn and other crops. However, the registration status of these products changes continually; thus, check with county extension agents or USDA-APHIS-ADC biologists for products currently registered.

Toxicants

Starlicide is a registered toxicant for blackbirds and starlings in feedlot situations. The active ingredient, 3-chloro-*p*-toluidine hydrochloride, is incorporated into pelletized bait at a concentration of 0.1% and sold commercially under the trade name Starlicide Complete®. Starlicide Technical® (98% active ingredient), which can be custom-mixed with livestock feed or other bait material, is also available through the USDA-APHIS-ADC Program. Starlicide Technical® can be used only by or under supervision of ADC employees.

Starlicide is a slow-acting toxicant; birds usually die 1 to 3 days after feeding. Baiting programs are most successful in winter, especially with snow cover present, when alternate foods are scarce. A successful program generally requires a period of prebaiting with nontoxic bait to accustom the target blackbirds and starlings to feed at specific bait sites inaccessible to livestock in the feedlot. Monitoring to ensure that nontarget birds such as doves, song birds, and barnyard fowl do not feed at bait sites is essential. See the chapter **Starlings** for more details on the use of Starlicide.

Trapping

Certain species of blackbirds, particularly redwings, brown-headed cowbirds, and common grackles, often can be readily trapped in decoy traps. Consult a state wildlife official, such as a conservation officer or game warden, before putting a decoy trap into operation. A decoy trap is a large (for instance, 20 x 20 x 6 feet [6 x 6 x 1.8 m]) poultry wire or net enclosure containing 10 to 20 decoy birds, food, and water (Fig. 6). Birds enter the trap

Fig. 5. Mylar reflecting tape strung above the vegetation can reduce blackbird feeding activity in agricultural fields.

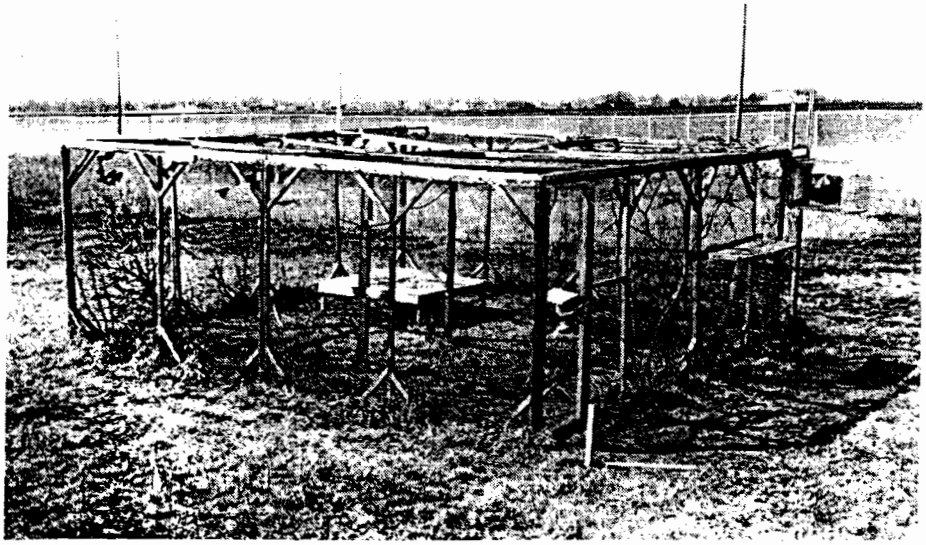


Fig. 6. A typical blackbird and starling decoy trap showing elevated feed platform in center of trap and gathering cage on the far right. Birds enter the trap through a 2 x 4-foot (0.6 x 1.2-m) opening covered with 2 x 4-inch (5 x 10-cm) welded wire located directly above the feed platform.

through an opening (often 2 x 4 feet [0.6 x 1.2 m]) in the top of the cage that is covered with 2 x 4-inch (5 x 10-cm) welded wire. The blackbirds can fold their wings and readily drop through the openings to the food (generally cracked corn, millet, or sunflower seeds) below. A small (for example, 2 x 2 x 3 feet [0.6 x 0.6 x 0.9 m]) gathering cage with a sliding door attached to an opening at an upper corner of the trap can be used to collect trapped birds. A corralling baffle running about two-thirds the length of the trap can aid in driving the birds into the gathering cage.

A decoy trap often catches 10 to 50 blackbirds and starlings per day and occasionally up to 300 when located near a large roost. Obviously, the decoy trap is of questionable value in trying to reduce large roosting populations and damage to the surrounding agricultural fields. These traps, however, can be used to temporarily reduce local populations of blackbirds in special situations. For example, decoy traps have been used successfully in a six-county area of Michigan since the 1970s to reduce cowbird populations during the nesting season. This control was initiated to increase the nesting success of the Kirtland's warbler *(Dendroica kirtlandii)*, an endangered species whose nests are often used by cowbirds for laying their own eggs. Each year about 3,500 cowbirds have been captured by decoy traps in this area of Michigan. Decoy traps might also be successful in reducing localized populations around feedlots or fruit crops.

Any nontarget songbirds accidentally captured in a decoy trap should be released immediately. Blackbirds to be disposed of should be killed humanely. They can be transferred from the gathering cage to a cardboard box or canvas-covered cage and asphyxiated with carbon dioxide gas. All dead birds should be examined for bands, and any bands found should be reported. One option for disposal that should not be overlooked is culinary. Blackbirds, being primarily grain eaters, make good food for humans! Recipes for quail or dove also work well for blackbirds.

Shooting

As discussed under Frightening, shooting to kill with a shotgun is most effective when used occasionally to supplement or reinforce other scare devices. By itself, shooting with a shotgun is not cost-effective in frightening blackbirds from large agricultural fields, and it is totally ineffective as a means of reducing populations. Any killed birds should be examined for bands.

Economics of Damage and Control

Superficial surveys of agricultural fields often overestimate blackbird damage and thus exaggerate the overall severity of the economic threat for one of four reasons: (1) the conspicuousness of blackbird flocks tends to heighten the awareness of bird damage compared with other more subtle forms of loss caused by weeds, insects, other pests, and harvesting; (2) the eye naturally seeks out the conspicuously bird-damaged plants; (3) bird damage is often most severe along field edges where an observer is most likely to check; and (4) raccoon, other mammal, or wind damage is sometimes mistaken for bird damage (see the section Damage Identification and Assessment). This is not to downgrade the problem of blackbird damage in agriculture; damage can be economically severe on occasion and quite frustrating to the farmer when relief is not readily available. It is important, however, to obtain objective estimates of damage levels likely to occur, for only then can intelligent decisions be made regarding the amount of money and effort to be invested on control. The final decision on control measures must take into account the value of the crop, cost of control, and the degree of effectiveness of the control measure in relation to the probable levels of damage.

Studies during the past two decades concerning blackbird damage to various crops such as corn and sunflower indicate that on statewide or regional bases, overall mean damage is low, generally less than 1% of the crop. If all farmers received less than 1% damage, there would be little concern; however, the damage is not equally distributed. While most farmers escape economically serious damage, a few farmers receive serious damage. For example, in North Dakota, South Dakota, and Minnesota in 1979 and 1980, overall loss of sunflower to blackbirds was estimated to be only 1.2% of the crop. Yet, 2% of the fields received more than 10% loss. Only in these relatively few fields that sustain

high levels of damage can control measures generally be cost-effective.

While accurate prediction of damage is often impossible to obtain, knowledge of the location of a field in relation to traditional roosting sites often provides the basis for a sound estimate of potential damage. For example, studies of blackbird damage to ripening corn in Ohio have revealed that almost all losses exceeding 5% of the crop have occurred in fields within 5 miles (8 km) of marsh roosts.

Objective estimates of damage levels in previous years for the same or nearby fields are another means of predicting future damage levels, because bird damage is fairly consistent from year to year within a locality. This information also provides a good baseline for evaluating the effectiveness of management strategies. Of course, it is important that estimates be objective and apply to the entire field.

Acknowledgments

Figures 1 through 3 by Emily Oseas Routman.

Figures 4, 5, and 6 by the author.

For Additional Information

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